FIG. 1

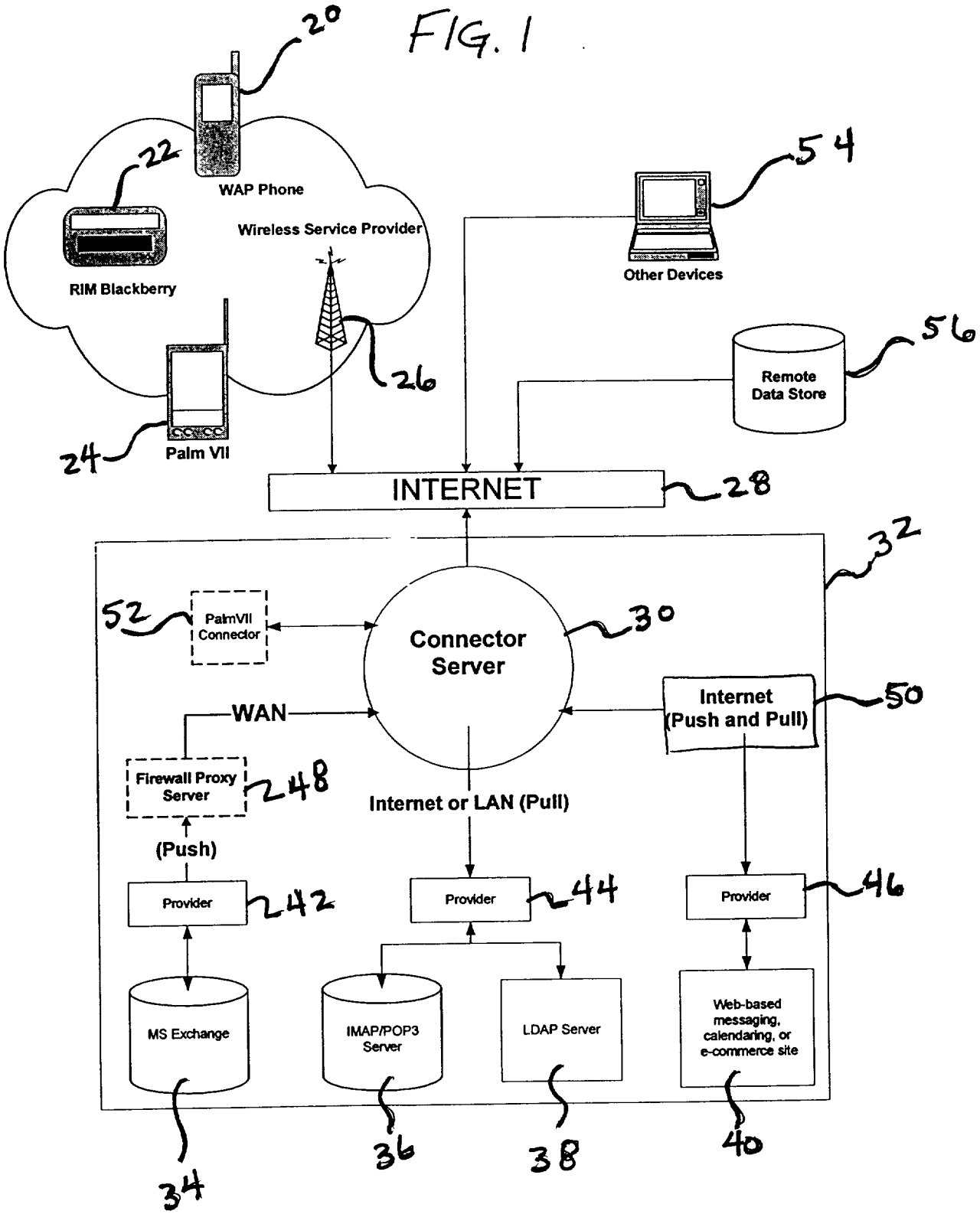
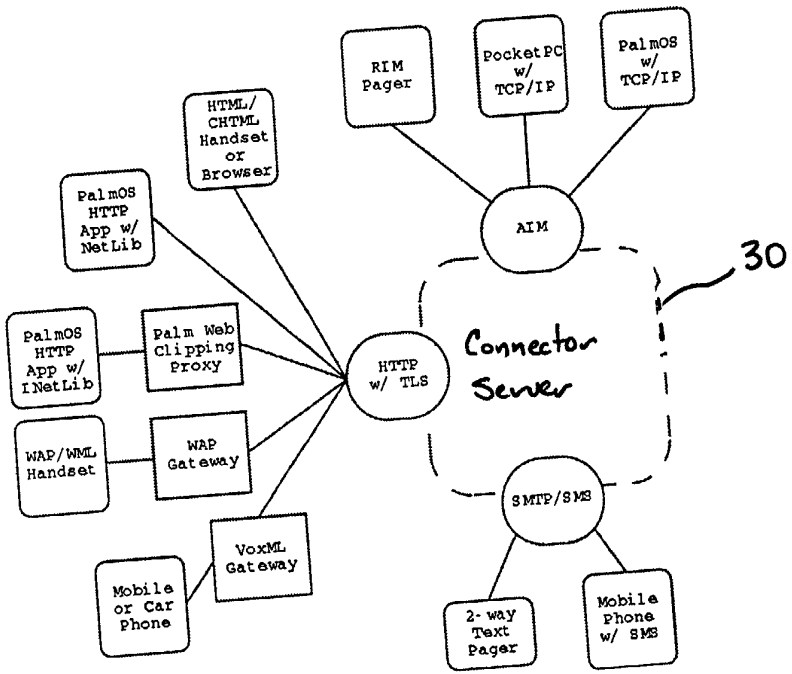

20
WAP Phone
22
RIM Blackberry
Wireless Service Provider
26
54
Other Devices
56
Remote Data Store
24
Palm VII
INTERNET
28
32
52
PalmVII Connector
Connector Server
30
WAN
Internet (Push and Pull)
50
Firewall Proxy Server
248
Internet or LAN (Pull)
(Push)
Provider
242
Provider
44
Provider
46
MS Exchange
IMAP/POP3 Server
LDAP Server
Web-based messaging, calendaring, or e-commerce site
34
36
38
40

FIG. 2


RIM Pager
PocketPC w/ TCP/IP
PalmOS w/ TCP/IP
HTML/ CHTML Handset or Browser
PalmOS HTTP App w/ NetLib
AIM
30
PalmOS HTTP App w/ INetLib
Palm Web Clipping Proxy
HTTP w/ TLS
Connector Server
WAP/WML Handset
WAP Gateway
SMTP/SMS
VoxML Gateway
Mobile or Car Phone
2-way Text Pager
Mobile Phone w/ SMS

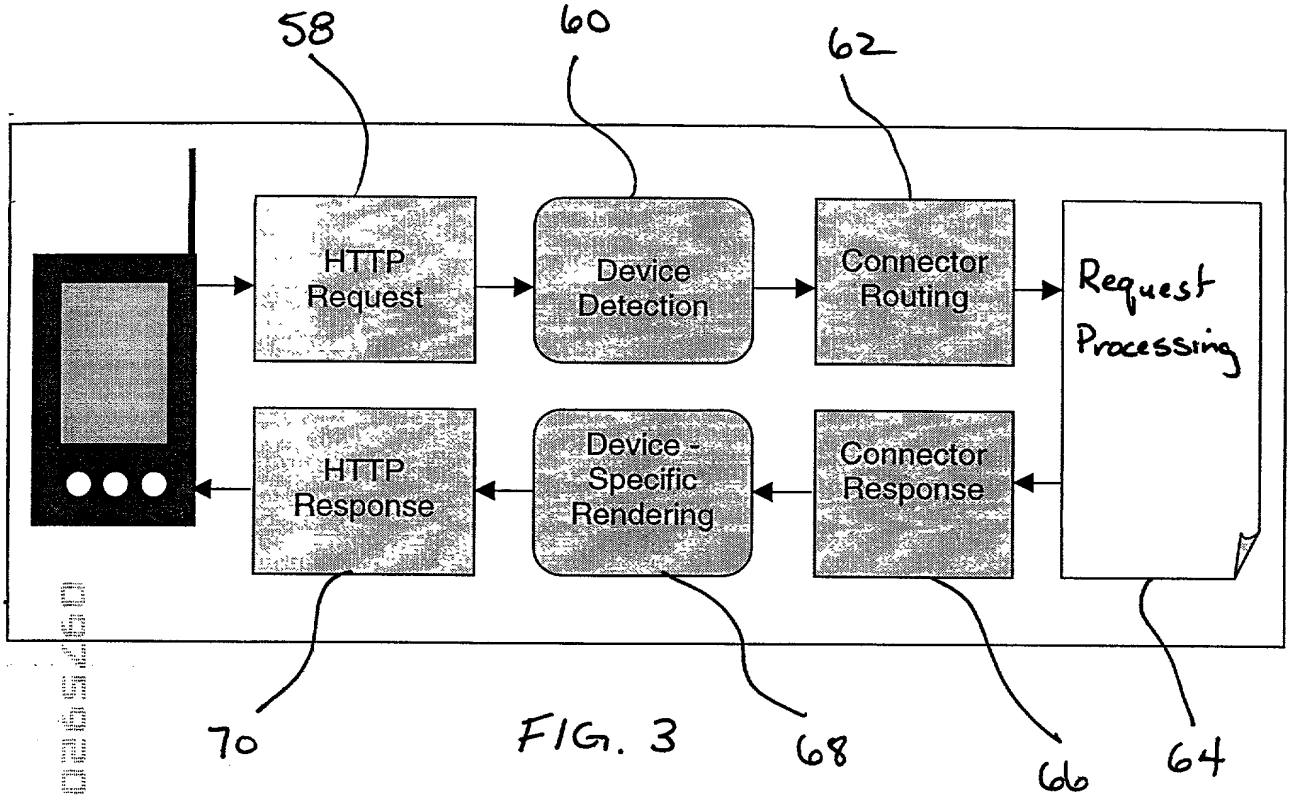

58
60
62
HTTP Request
Device Detection
Connector Routing
Request Processing
HTTP Response
Device - Specific Rendering
Connector Response
70
68
66
64

FIG. 3

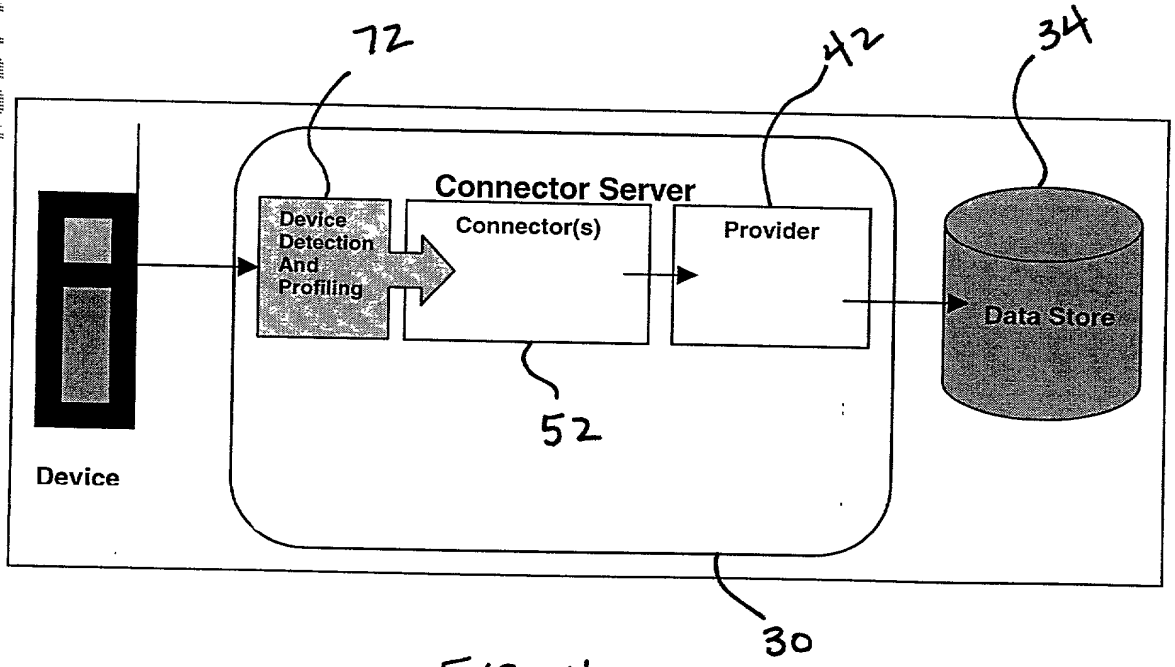

72
42
34
Connector Server
Device Detection And Profiling
Connector(s)
Provider
Data Store
52
Device
30

FIG. 4

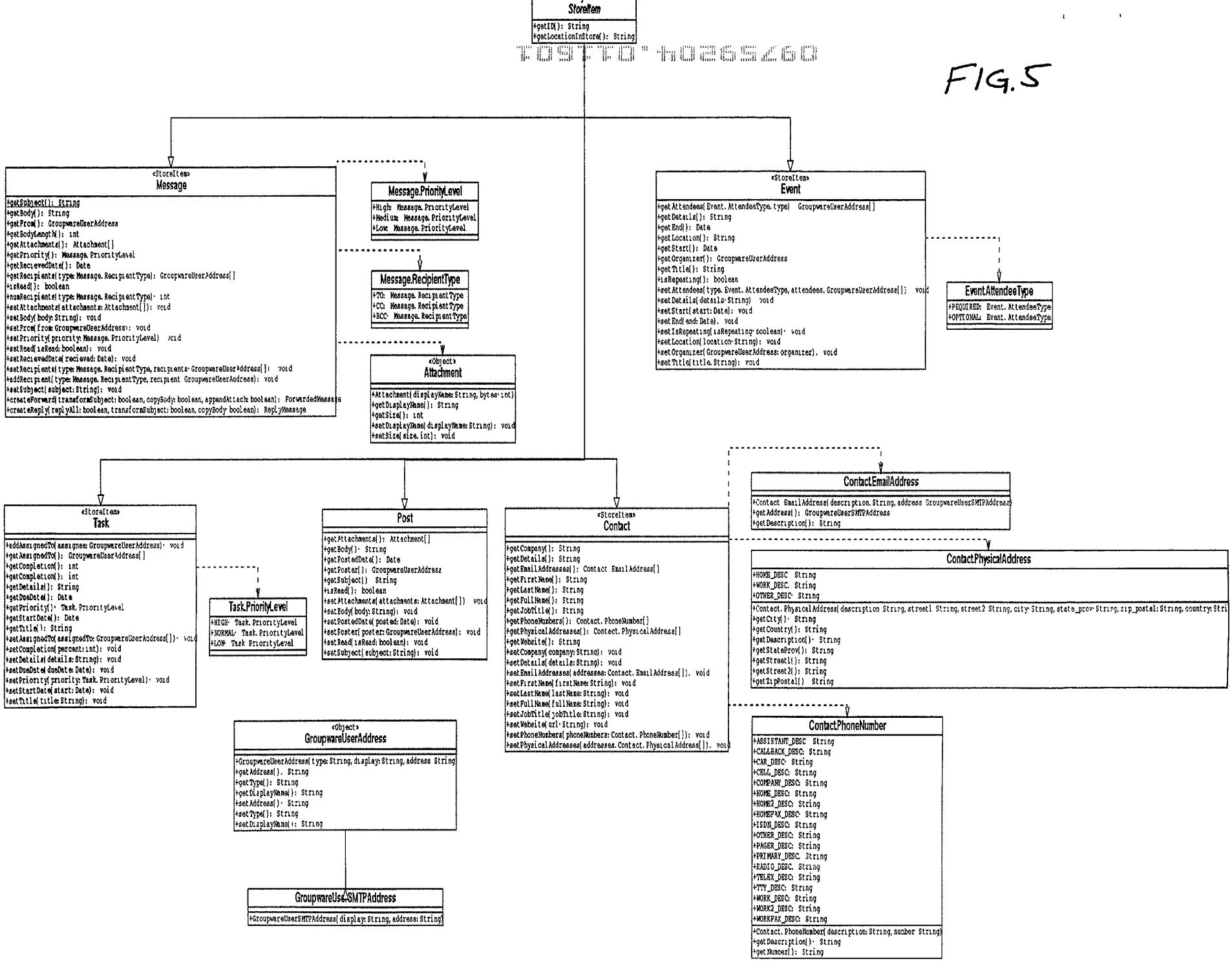
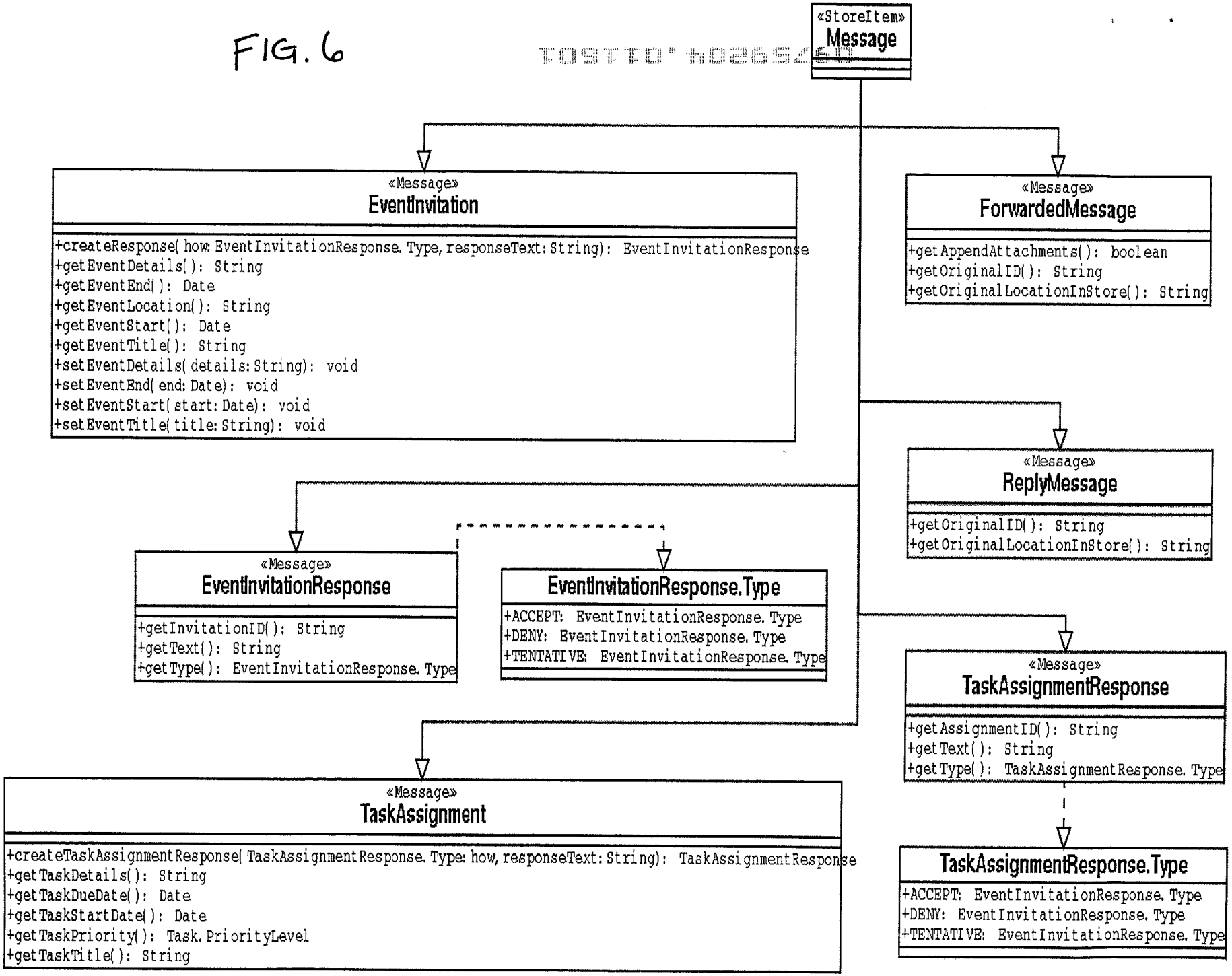

StoreItem
+getID(): String
+getLocationInStore(): String
«StoreItem»
Message
+getSubject(): String
+getBody(): String
+getFrom(): GroupwareUserAddress
+getBodyLength(): int
+getAttachments(): Attachment[]
+getPriority(): Message.PriorityLevel
+getRecievedDate(): Date
+getRecipients(type: Message.RecipientType): GroupwareUserAddress[]
+isRead(): boolean
+numRecipients(type: Message.RecipientType): int
+setAttachments(attachments: Attachment[]): void
+setBody(body:String): void
+setFrom(from:GroupwareUserAddress): void
+setPriority(priority: Message.PriorityLevel) void
+setRead(isRead: boolean): void
+setRecievedDate(recieved: Date): void
+setRecipients(type: Message.RecipientType, recipients: GroupwareUserAddress[]) void
+addRecipient(type: Message.RecipientType, recipient GroupwareUserAddress): void
+setSubject(subject:String): void
+createForward(transformSubject: boolean, copyBody: boolean, appendAttach: boolean): ForwardedMessage
+createReply(replyAll: boolean, transformSubject: boolean, copyBody boolean): ReplyMessage
Message.PriorityLevel
+High: Message.PriorityLevel
+Medium: Message.PriorityLevel
+Low: Message.PriorityLevel
Message.RecipientType
+TO: Message.RecipientType
+CC: Message.RecipientType
+BCC: Message.RecipientType
«Object»
Attachment
+Attachment(displayName: String, bytes: int)
+getDisplayName(): String
+getSize(): int
+setDisplayName(displayName: String): void
+setSize(size. int): void
«StoreItem»
Event
+getAttendees(Event.AttendeesType. type) GroupwareUserAddress[]
+getDetails(): String
+getEnd(): Date
+getLocation(): String
+getStart(): Date
+getOrganizer(): GroupwareUserAddress
+getTitle(): String
+isRepeating(): boolean
+setAttendees(type. Event.AttendeeType, attendees. GroupwareUserAddress[]; void
+setDetails(details-String) void
+setStart(start:Date): void
+setEnd(end: Date). void
+setIsRepeating(isRepeating: boolean): void
+setLocation(location-String): void
+setOrganizer(GroupwareUserAddress: organizer). void
+setTitle(title. String): void
Event.AttendeeType
+REQUIRED: Event. AttendeeType
+OPTIONAL: Event. AttendeeType
«StoreItem»
Task
+addAssignedTo(assignee: GroupwareUserAddress): void
+getAssignedTo(): GroupwareUserAddress[]
+getCompletion(): int
+getCompletion(): int
+getDetails(): String
+getDueDate(): Date
+getPriority(): Task.PriorityLevel
+getStartDate(): Date
+getTitle(): String
+setAssignedTo(assignedTo: GroupwareUserAddress[]): void
+setCompletion(percent:int): void
+setDetails(details:String): void
+setDueDate(dueDate: Date): void
+setPriority(priority: Task.PriorityLevel): void
+setStartDate(start: Date): void
+setTitle(title:String): void
Task.PriorityLevel
+HIGH: Task.PriorityLevel
+NORMAL: Task.PriorityLevel
+LOW: Task.PriorityLevel
Post
+getAttachments(): Attachment[]
+getBody(): String
+getPostedDate(): Date
+getPoster(): GroupwareUserAddress
+getSubject() String
+isRead(): boolean
+setAttachments(attachments: Attachment[]) void
+setBody(body:String): void
+setPostedDate(posted:Date): void
+setPoster(poster:GroupwareUserAddress): void
+setRead(isRead: boolean): void
+setSubject(subject:String): void
«StoreItem»
Contact
+getCompany(): String
+getDetails(): String
+getEmailAddresses(): Contact.EmailAddress[]
+getFirstName(): String
+getLastName(): String
+getFullName(): String
+getJobTitle(): String
+getPhoneNumbers(): Contact.PhoneNumber[]
+getPhysicalAddresses(): Contact.PhysicalAddress[]
+getWebsite(): String
+setCompany(company:String): void
+setDetails(details:String): void
+setEmailAddresses(addresses: Contact.EmailAddress[]). void
+setFirstName(firstName:String): void
+setLastName(lastName:String): void
+setFullName(fullName:String): void
+setJobTitle(jobTitle:String): void
+setWebsite(url-String): void
+setPhoneNumbers(phoneNumbers: Contact.PhoneNumber[]): void
+setPhysicalAddresses(addresses. Contact.PhysicalAddress[]). void
Contact.EmailAddress
+Contact.EmailAddress(description.String, address GroupwareUserSMTPAddress)
+getAddress(): GroupwareUserSMTPAddress
+getDescription(): String
Contact.PhysicalAddress
+HOME_DESC String
+WORK_DESC. String
+OTHER_DESC String
+Contact.PhysicalAddress(description String, street1 String, street2 String, city String, state_prov String, zip_postal: String, country: Stri
+getCity(): String
+getCountry(): String
+getDescription(): String
+getStateProv(): String
+getStreet1(): String
+getStreet2(): String
+getZipPostal() String
Contact.PhoneNumber
+ASSISTANT_DESC String
+CALLBACK_DESC: String
+CAR_DESC: String
+CELL_DESC: String
+COMPANY_DESC: String
+HOME_DESC: String
+HOME2_DESC: String
+HOMEFAX_DESC: String
+ISDN_DESC: String
+OTHER_DESC: String
+PAGER_DESC: String
+PRIMARY_DESC. String
+RADIO_DESC. String
+TELEX_DESC: String
+TTY_DESC: String
+WORK_DESC: String
+WORK2_DESC: String
+WORKFAX_DESC: String
+Contact.PhoneNumber(description: String, number String)
+getDescription(): String
+getNumber(): String
«Object»
GroupwareUserAddress
+GroupwareUserAddress(type: String, display: String, address String
+getAddress(). String
+getType(): String
+getDisplayName(): String
+setAddress(): String
+setType(): String
+setDisplayName(): String
GroupwareUserSMTPAddress
+GroupwareUserSMTPAddress(display: String, address: String)

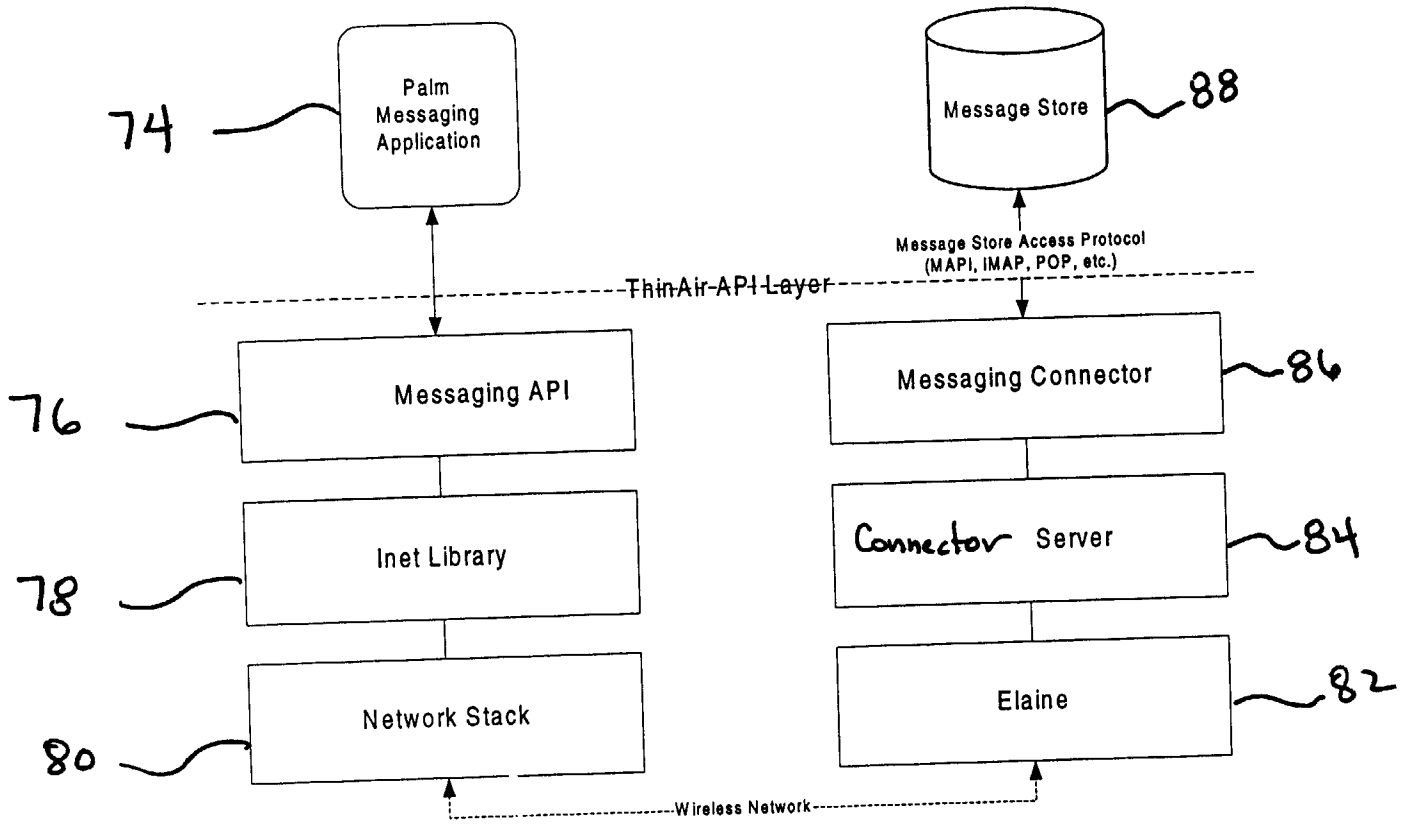
FIG.5

FIG. 6


«StoreItem»
Message
«Message»
EventInvitation
+createResponse(how: EventInvitationResponse. Type, responseText: String): EventInvitationResponse
+getEventDetails( ): String
+getEventEnd( ): Date
+getEventLocation( ): String
+getEventStart( ): Date
+getEventTitle( ): String
+setEventDetails(details: String): void
+setEventEnd(end: Date): void
+setEventStart(start: Date): void
+setEventTitle(title: String): void
«Message»
ForwardedMessage
+getAppendAttachments( ): boolean
+getOriginalID( ): String
+getOriginalLocationInStore( ): String
«Message»
ReplyMessage
+getOriginalID( ): String
+getOriginalLocationInStore( ): String
«Message»
EventInvitationResponse
+getInvitationID( ): String
+getText( ): String
+getType( ): EventInvitationResponse. Type
EventInvitationResponse.Type
+ACCEPT: EventInvitationResponse. Type
+DENY: EventInvitationResponse. Type
+TENTATIVE: EventInvitationResponse. Type
«Message»
TaskAssignmentResponse
+getAssignmentID( ): String
+getText( ): String
+getType( ): TaskAssignmentResponse. Type
«Message»
TaskAssignment
+createTaskAssignmentResponse(TaskAssignmentResponse. Type: how, responseText: String): TaskAssignmentResponse
+getTaskDetails( ): String
+getTaskDueDate( ): Date
+getTaskStartDate( ): Date
+getTaskPriority( ): Task. PriorityLevel
+getTaskTitle( ): String
TaskAssignmentResponse.Type
+ACCEPT: EventInvitationResponse. Type
+DENY: EventInvitationResponse. Type
+TENTATIVE: EventInvitationResponse. Type

SCANNED, #4

FIG. 7



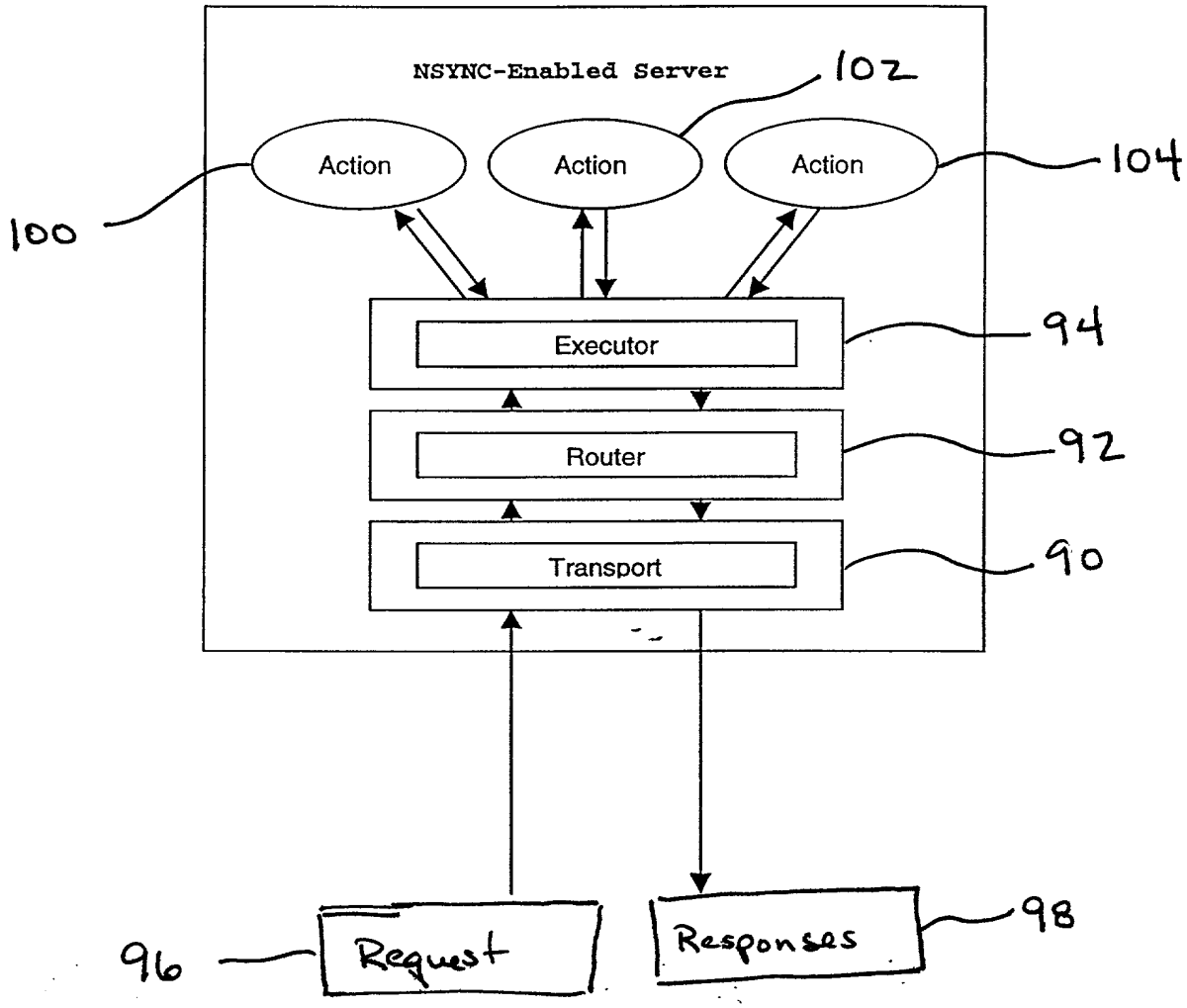

NSYNC-Enabled Server
102
Action
Action
Action
104
100
Executor
94
Router
92
Transport
90
96
Request
Responses
98

FIG. 8

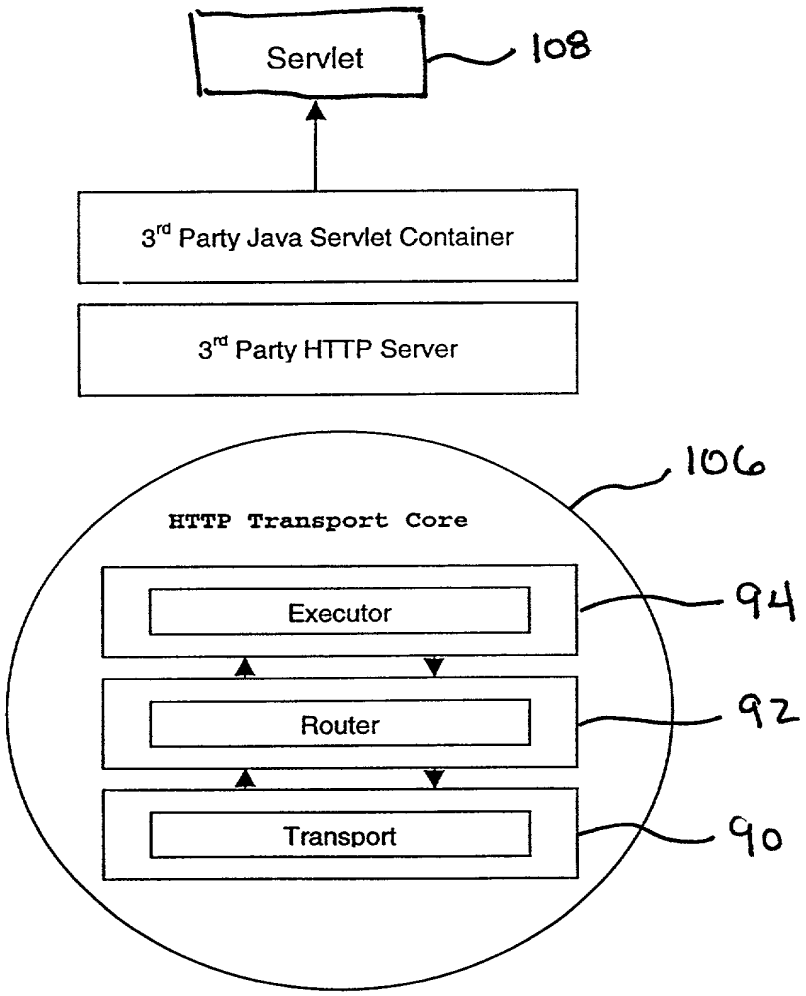

Servlet
108
3rd Party Java Servlet Container
3rd Party HTTP Server
106
HTTP Transport Core
Executor
94
Router
92
Transport
90

FIG. 9

FIG. 10 A

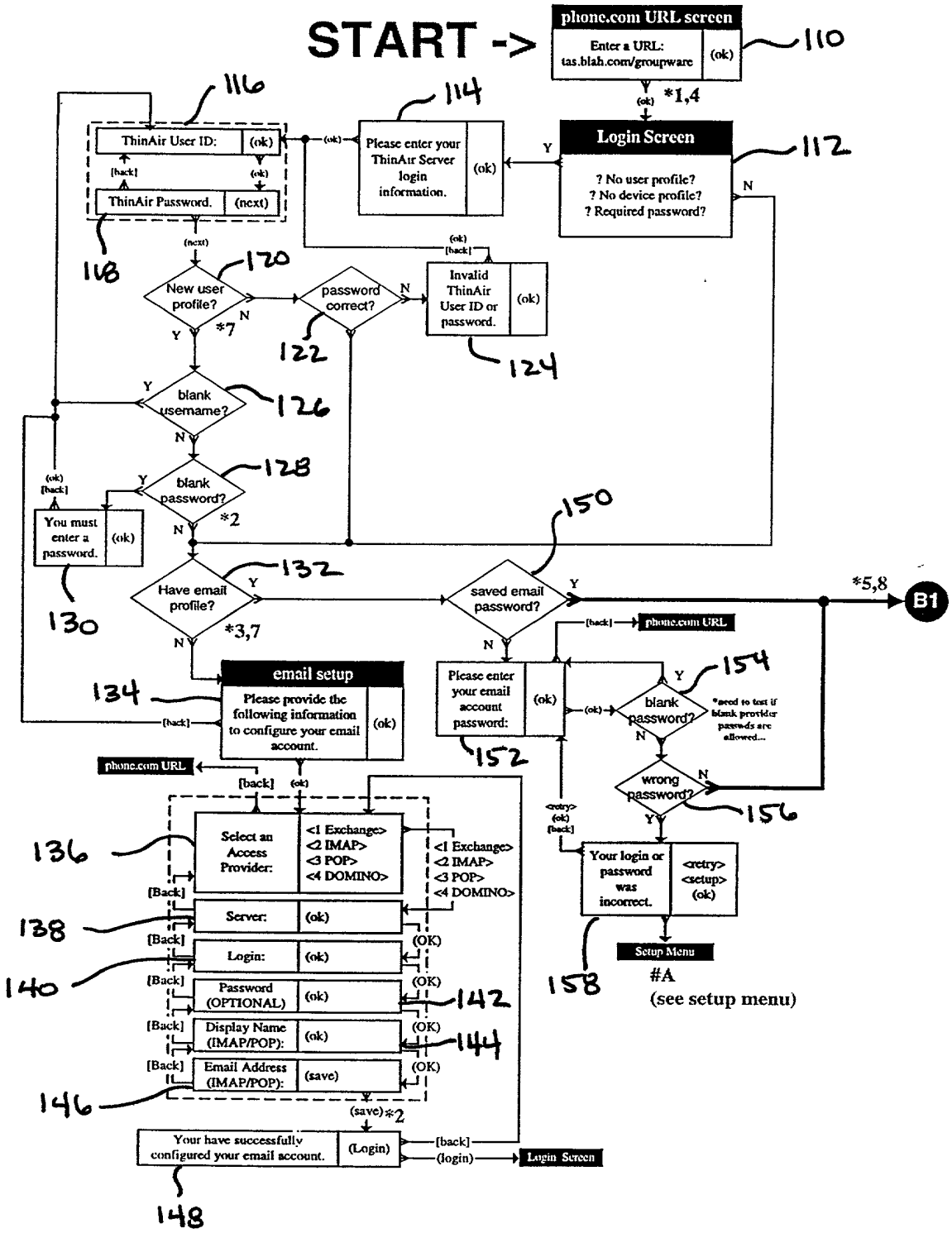

START ->
phone.com URL screen
Enter a URL: tas.blah.com/groupware
(ok)
110
*1,4
Login Screen
? No user profile?
? No device profile?
? Required password?
112
Please enter your ThinAir Server login information.
114
ThinAir User ID:
ThinAir Password.
(next)
116
118
New user profile?
120
*7
password correct?
122
Invalid ThinAir User ID or password.
124
blank username?
126
blank password?
128
*2
You must enter a password.
130
Have email profile?
132
*3,7
saved email password?
150
*5,8
B1
email setup
Please provide the following information to configure your email account.
134
Please enter your email account password:
152
blank password?
154
*need to test if blank provider passwds are allowed...
wrong password?
156
Your login or password was incorrect.
<retry>
<setup>
(ok)
158
Setup Menu
#A
(see setup menu)
phone.com URL
[back]
(ok)
Select an Access Provider:
<1 Exchange>
<2 IMAP>
<3 POP>
<4 DOMINO>
136
Server:
138
Login:
140
Password (OPTIONAL)
142
Display Name (IMAP/POP):
144
Email Address (IMAP/POP):
146
(save)
(OK)
*2
Your have successfully configured your email account.
(Login)
(back)
(login)
Login Screen
148

FIG. 10 B

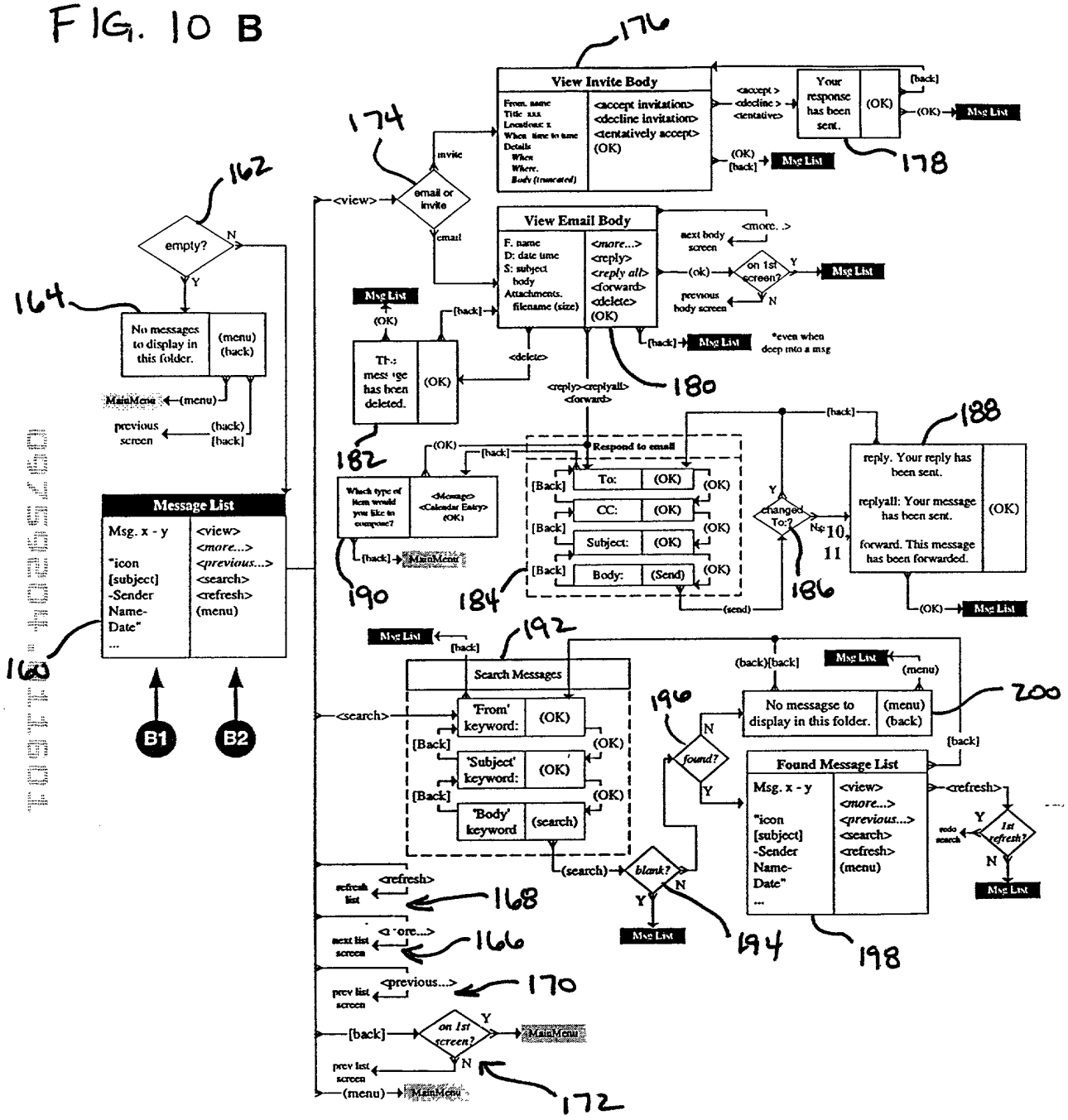

176
View Invite Body
From, name
Title xxx
Location: x
When time to time
Details
When
Where
Body (truncated)
<accept invitation>
<decline invitation>
<tentatively accept>
(OK)
<accept>
<decline>
<tentative>
Your response has been sent.
(OK)
[back]
(OK)
Msg List
(OK)
[back]
Msg List
178
174
email or invite
invite
email
<view>
162
empty?
N
Y
164
No messages to display in this folder.
(menu)
(back)
MainMenu
(menu)
previous screen
(back)
[back]
Message List
Msg. x - y
"icon
[subject]
-Sender
Name-
Date"
...
<view>
<more...>
<previous...>
<search>
<refresh>
(menu)
160
B1
B2
View Email Body
F. name
D: date time
S: subject
body
Attachments.
filename (size)
<more...>
<reply>
<reply all>
<forward>
<delete>
(OK)
<more...>
next body screen
(ok)
on 1st screen?
Y
N
previous body screen
Msg List
[back]
Msg List
*even when deep into a msg
Msg List
(OK)
The message has been deleted.
(OK)
<delete>
182
<reply><replyall><forward>
180
Respond to email
[back]
(OK)
Which type of item would you like to compose?
<Message>
<Calendar Entry>
(OK)
[back]
MainMenu
190
[Back]
To:
(OK)
(OK)
CC:
(OK)
Subject:
(OK)
Body:
(Send)
184
(send)
changed To:?
Y
N
186
10, 11
188
reply. Your reply has been sent.
replyall: Your message has been sent.
forward. This message has been forwarded.
(OK)
Msg List
Msg List
[back]
192
Search Messages
<search>
'From' keyword:
(OK)
'Subject' keyword:
(OK)
'Body' keyword
(search)
(search)
refresh list
<refresh>
168
next list screen
<more...>
166
prev list screen
<previous...>
170
[back]
on 1st screen?
Y
N
MainMenu
prev list screen
(menu)
MainMenu
172
blank?
Y
N
Msg List
194
found?
N
Y
196
(back)(back)
Msg List
(menu)
No messagse to display in this folder.
(menu)
(back)
200
[back]
Found Message List
Msg. x - y
"icon
[subject]
-Sender
Name-
Date"
...
<view>
<more...>
<previous...>
<search>
<refresh>
(menu)
198
<refresh>
redo search
1st refresh?
Y
N
Msg List

FIG. 10C

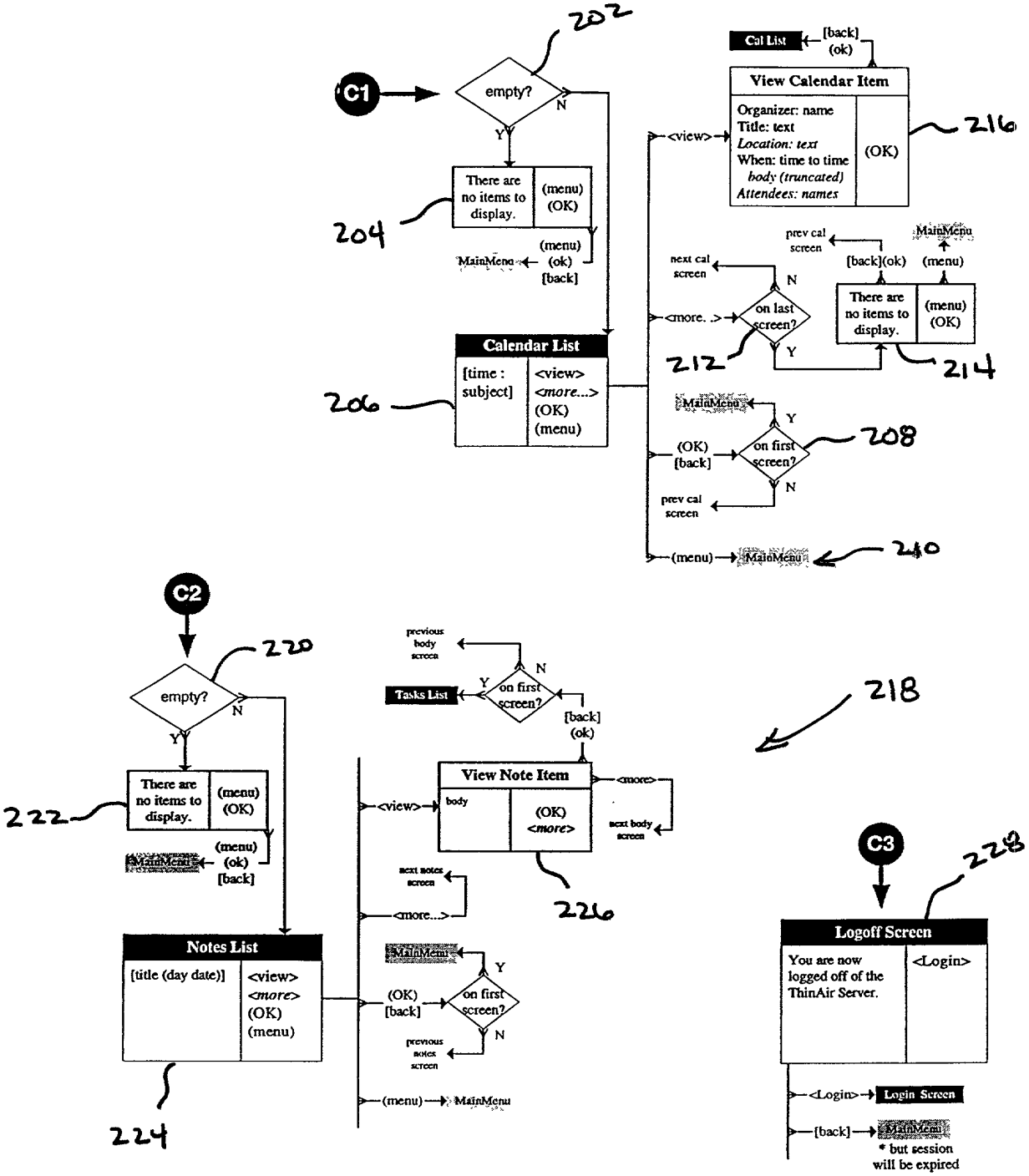

C1
empty?
202
N
Y
There are no items to display.
(menu)
(OK)
204
MainMenu
(menu)
(ok)
[back]
Calendar List
[time : subject]
<view>
<more...>
(OK)
(menu)
206
Cal List
[back]
(ok)
View Calendar Item
Organizer: name
Title: text
Location: text
When: time to time
body (truncated)
Attendees: names
(OK)
216
<view>
prev cal screen
MainMenu
[back](ok)
(menu)
next cal screen
<more...>
on last screen?
There are no items to display.
(menu)
(OK)
212
214
MainMenu
(OK)
[back]
on first screen?
208
prev cal screen
(menu)
MainMenu
240
C2
empty?
220
There are no items to display.
(menu)
(OK)
222
MainMenu
(menu)
(ok)
[back]
Notes List
[title (day date)]
<view>
<more>
(OK)
(menu)
224
previous body screen
Tasks List
on first screen?
[back]
(ok)
218
View Note Item
body
(OK)
<more>
<more>
next body screen
<view>
next notes screen
<more...>
226
MainMenu
(OK)
[back]
on first screen?
previous notes screen
(menu)
MainMenu
C3
228
Logoff Screen
You are now logged off of the ThinAir Server.
<Login>
<Login>
Login Screen
[back]
MainMenu
* but session will be expired

FIG. 10 D

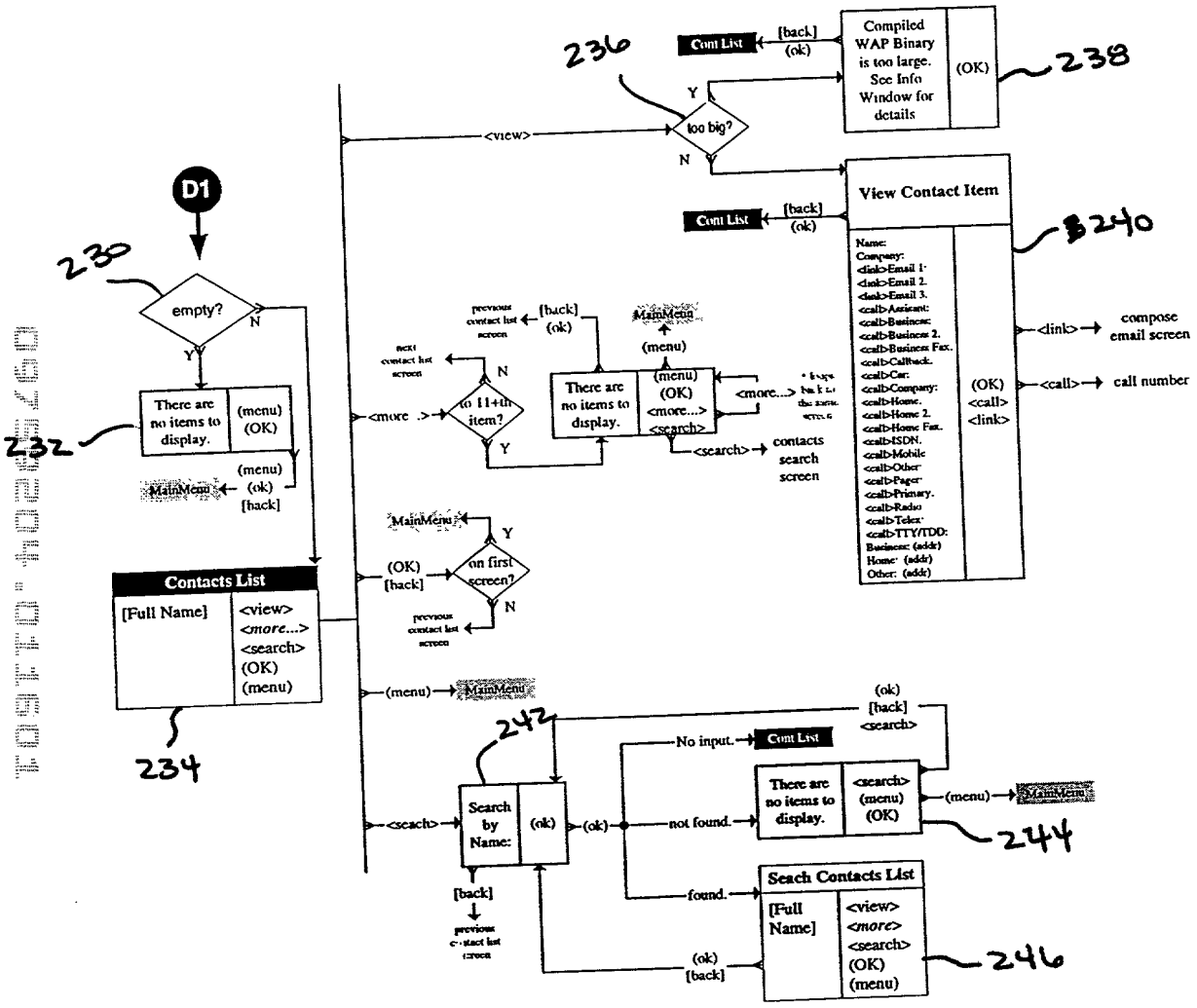

D1
230
empty?
Y
N
There are no items to display.
(menu)
(OK)
232
MainMenu
(menu)
(ok)
[back]
Contacts List
[Full Name]
<view>
<more...>
<search>
(OK)
(menu)
234
<view>
236
too big?
Y
N
Cont List
[back]
(ok)
Compiled WAP Binary is too large. See Info Window for details
(OK)
238
View Contact Item
Name:
Company:
<link>Email 1:
<link>Email 2.
<link>Email 3.
<call>Assistant:
<call>Business:
<call>Business 2.
<call>Business Fax.
<call>Callback.
<call>Car:
<call>Company:
<call>Home.
<call>Home 2.
<call>Home Fax.
<call>ISDN.
<call>Mobile
<call>Other
<call>Pager
<call>Primary.
<call>Radio
<call>Telex
<call>TTY/TDD:
Business: (addr)
Home: (addr)
Other: (addr)
(OK)
<call>
<link>
240
<link>
compose email screen
<call>
call number
<more ..>
to 11th item?
N
Y
There are no items to display.
(menu)
(OK)
<more...>
<search>
<more...>
<search>
contacts search screen
previous contact list screen
[back]
(ok)
MainMenu
(menu)
MainMenu
(OK)
[back]
on first screen?
Y
N
previous contact list screen
(menu)
MainMenu
242
<search>
Search by Name:
(ok)
(ok)
No input.
Cont List
not found.
There are no items to display.
<search>
(menu)
(OK)
(menu)
MainMenu
244
found.
Seach Contacts List
[Full Name]
<view>
<more>
<search>
(OK)
(menu)
246
(ok)
[back]
[back]
previous contact list screen

FIG. 10 E

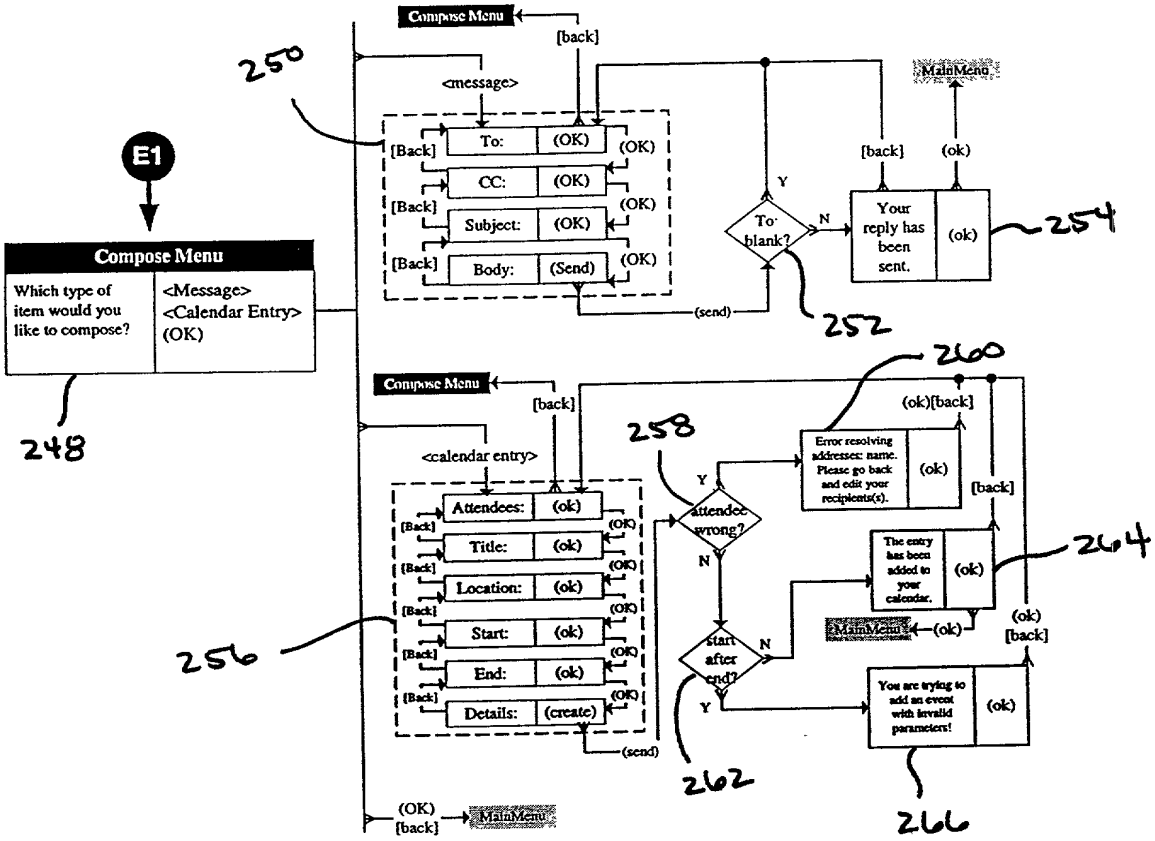
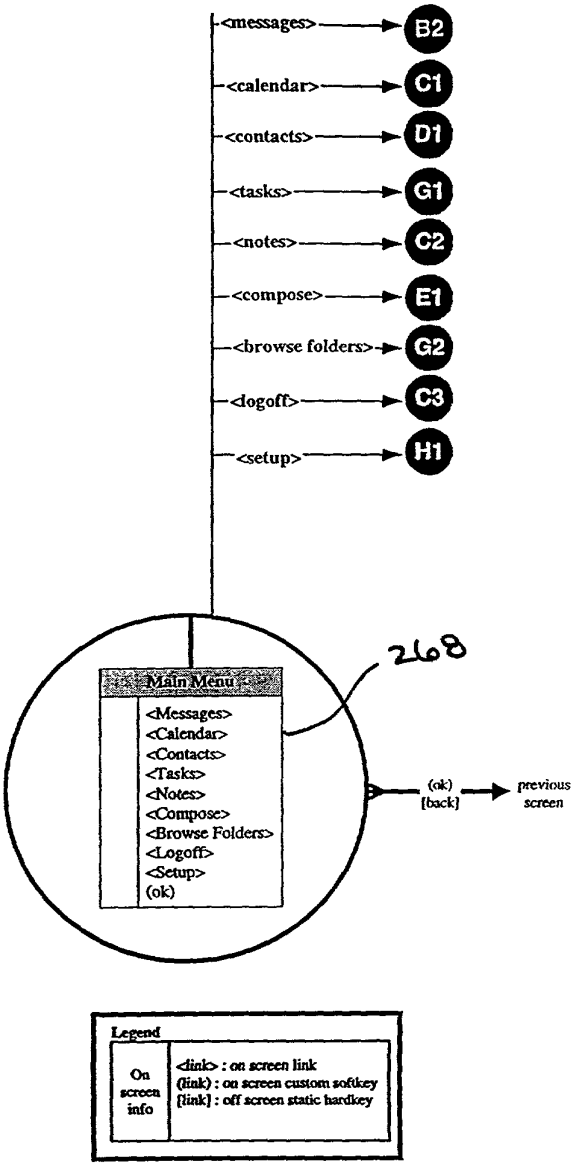

E1
Compose Menu
Which type of item would you like to compose?
<Message>
<Calendar Entry>
(OK)
248
Compose Menu
[back]
<message>
250
[Back]
To:
(OK)
CC:
Subject:
Body:
(Send)
(send)
To blank?
Y
N
[back]
(ok)
MainMenu
Your reply has been sent.
254
252
Compose Menu
[back]
<calendar entry>
Attendees:
Title:
Location:
Start:
End:
Details:
(create)
256
258
attendee wrong?
start after end?
Error resolving addresses: name. Please go back and edit your recipients(s).
(ok)[back]
260
The entry has been added to your calendar.
264
You are trying to add an event with invalid parameters!
262
266
(OK)
[back]
MainMenu

FIG. 10F



EXCEPTIONS for TAS1.1.16####

01. Network not available.
--> TAServer down.

02. The ThinAir Server is being actively config.·d by an administrator. Please try accessing it again later.
--> User Manager in use and in active mode.

03. No email access providers are currently available. Consult your ThinAir administrator or try again later.
--> provider down.

04. HTTP Error: 404.
--> missing "/groupware."

05. The ThinAir Provider could no be found. Please check your account settings.
-->provider down.

06. Your session has expired. Please login again.
-->Provider down after login.
-->Inactivity after login.

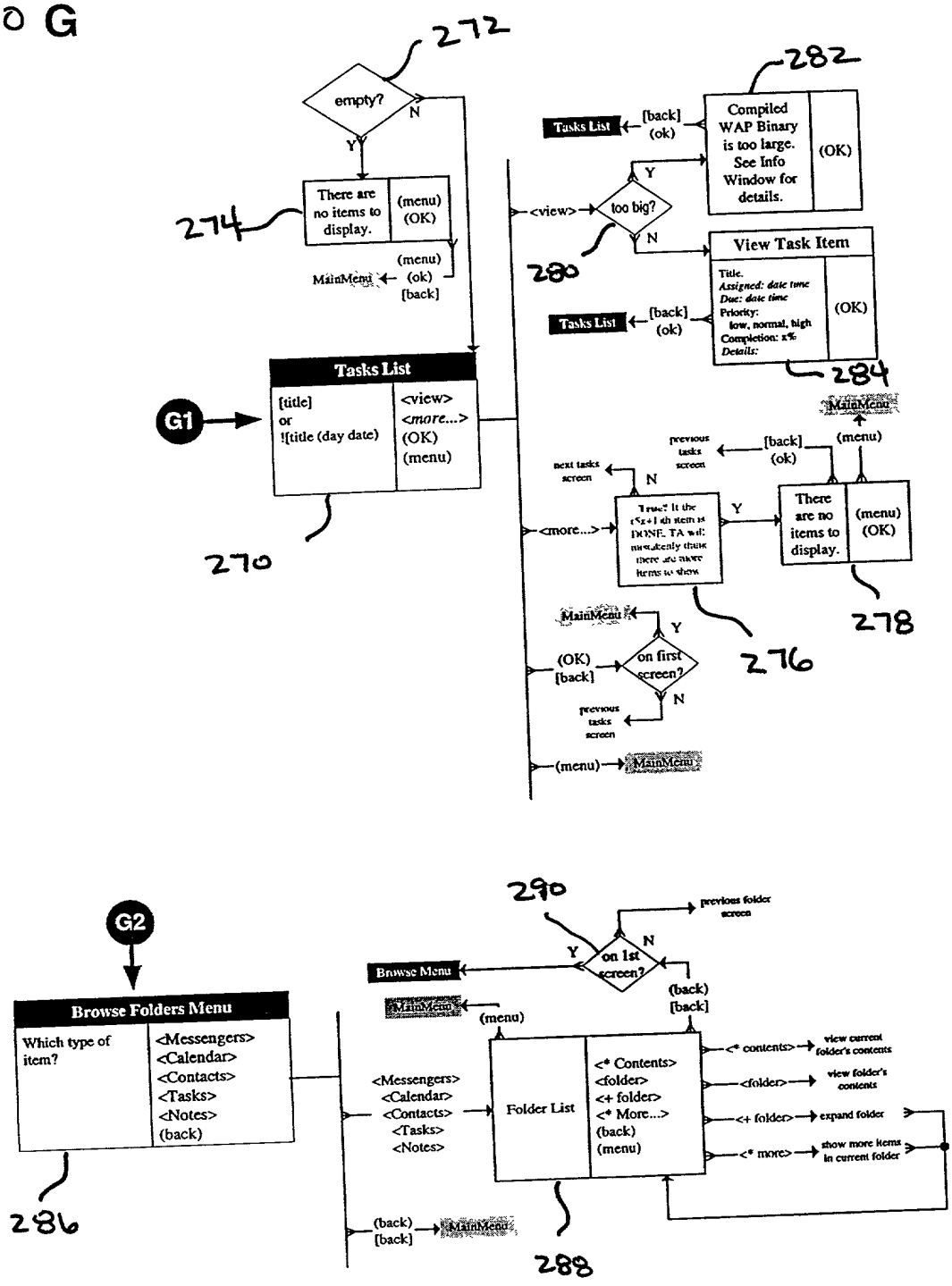
07. You do not have the proper permissions.
-->can't create new users
-->can't use users with no device profile.

08. ThinAir Server was unable to process your request.
<setup>
-->provider goes down abnormally and user tries to login.

10. The server could not be found. Please check your account settings.
-->smtp host not found.

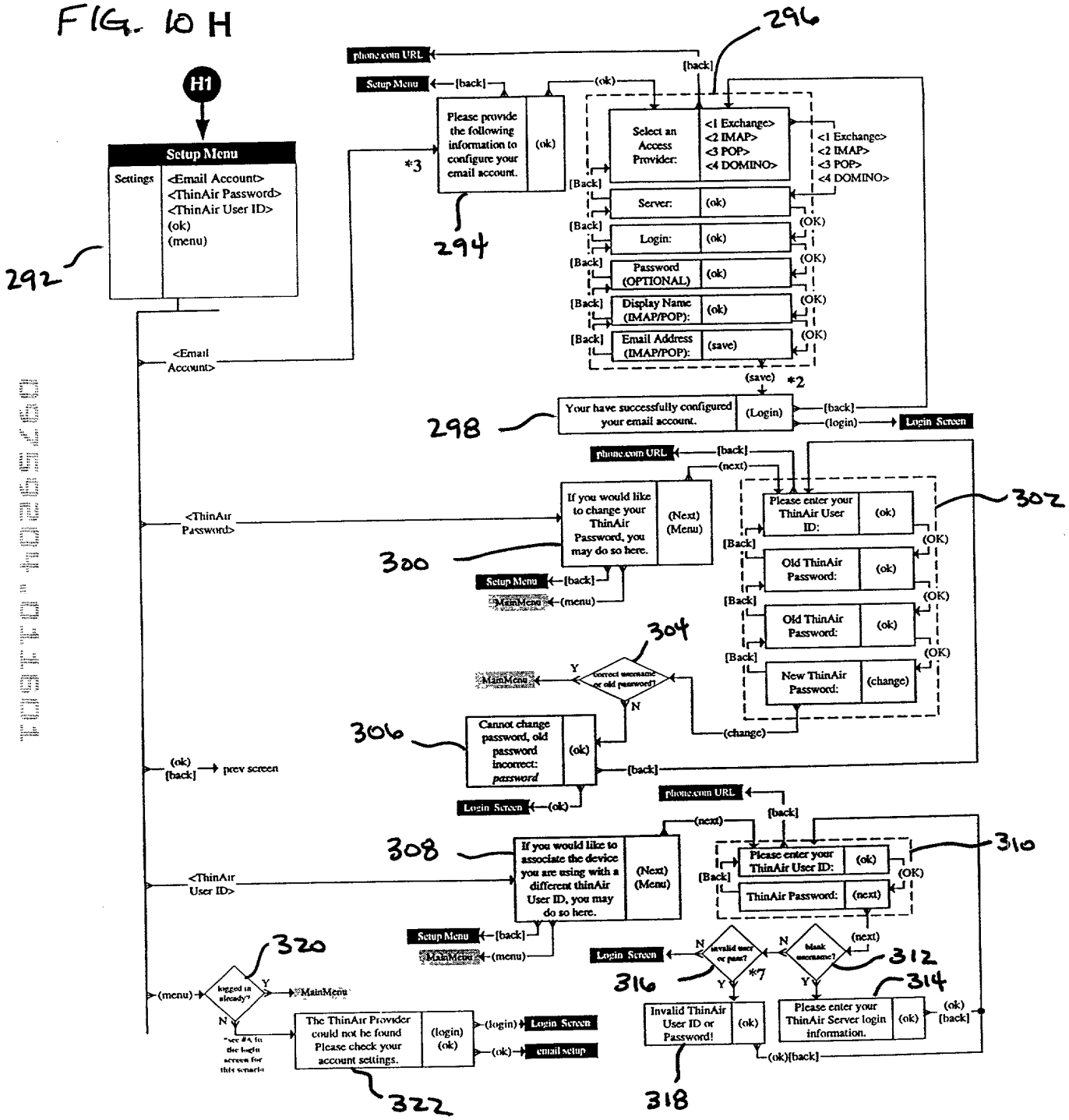
11. ThinAir Server could not connect to the specified host. Please check your settings and try again.
-->smtp service not running on host.

FIG. 10 G


272
empty?
N
Y
There are no items to display.
(menu)
(OK)
274
(menu)
(ok)
[back]
MainMenu
Tasks List
[title]
or
![title (day date)
<view>
<more...>
(OK)
(menu)
G1
270
Tasks List
[back]
(ok)
Compiled WAP Binary is too large. See Info Window for details.
(OK)
282
<view>
too big?
Y
N
280
View Task Item
Title.
Assigned: date time
Due: date time
Priority:
low, normal, high
Completion: x%
Details:
(OK)
284
Tasks List
[back]
(ok)
MainMenu
previous tasks screen
[back]
(ok)
(menu)
next tasks screen
N
<more...>
Y
There are no items to display.
(menu)
(OK)
278
276
MainMenu
Y
(OK)
[back]
on first screen?
N
previous tasks screen
(menu)
MainMenu

G2
Browse Folders Menu
Which type of item?
<Messengers>
<Calendar>
<Contacts>
<Tasks>
<Notes>
(back)
286
290
previous folder screen
Y
on 1st screen?
N
Browse Menu
MainMenu
(menu)
(back)
[back]
<Messengers>
<Calendar>
<Contacts>
<Tasks>
<Notes>
Folder List
<* Contents>
<folder>
<+ folder>
<* More...>
(back)
(menu)
<* contents>
view current folder's contents
<folder>
view folder's contents
<+ folder>
expand folder
<* more>
show more items in current folder
(back)
[back]
MainMenu
288

FIG. 10H


H1
Setup Menu
Settings
<Email Account>
<ThinAir Password>
<ThinAir User ID>
(ok)
(menu)
292
<Email Account>
<ThinAir Password>
<ThinAir User ID>
(ok) [back] → prev screen
phone.com URL
Setup Menu
[back]
(ok)
Please provide the following information to configure your email account.
(ok)
*3
294
296
Select an Access Provider:
<1 Exchange>
<2 IMAP>
<3 POP>
<4 DOMINO>
Server:
Login:
Password (OPTIONAL)
Display Name (IMAP/POP):
Email Address (IMAP/POP):
(ok)
(save)
(OK)
*2
298
Your have successfully configured your email account.
(Login)
Login Screen
If you would like to change your ThinAir Password, you may do so here.
(Next) (Menu)
300
MainMenu
(menu)
302
Please enter your ThinAir User ID:
Old ThinAir Password:
New ThinAir Password:
(change)
304
Correct username or old password?
Y
N
306
Cannot change password, old password incorrect: password
If you would like to associate the device you are using with a different thinAir User ID, you may do so here.
308
310
Please enter your ThinAir User ID:
ThinAir Password:
(next)
320
logged in already?
MainMenu
"see #A in the login screen for this scenario"
The ThinAir Provider could not be found Please check your account settings.
(login) (ok)
email setup
322
invalid user or pass?
*7
316
blank username?
312
Invalid ThinAir User ID or Password!
318
Please enter your ThinAir Server login information.
314